

We claim:

1        1. A board mountable transformer comprising:  
2        a support structure;  
3        a primary and a secondary winding wound on the support structure;  
4        termination points mounted in the support structure, wherein at least some of  
5        the termination points provide electrical connection to the primary and secondary  
6        windings;  
7        an electromagnetic shield wrapped around the winding and electrically  
8        connected to one of the termination points not connected to the primary or secondary  
9        windings, wherein the electromagnetic shield is electrically connectable to a fixed  
10      potential through a safety rated capacitor.

1        2. The board mountable transformer structure of Claim 1 wherein the  
2        fixed potential is a secondary ground.

1        3. The board mountable transformer of Claim 1 wherein the  
2        electromagnetic shield is electrically connected to the termination point by a  
3        conductive strap soldered to the electromagnetic shield.

1        4. The board mountable transformer of Claim 1 further comprising a  
2        magnetic core held by the support structure.

1        5. The board mountable transformer of Claim 1 wherein the safety rated  
2        capacitor is connected between secondary ground of a printed circuit board and the  
3        termination pin connected to the electromagnetic shield.

1           6. A power supply providing a regulated output voltage from an input  
2 voltage, the power supply having improved EMI performance and comprising:  
3           an input power stage receiving the input voltage;  
4           an output power stage providing the output voltage; and  
5           a transformer coupling and providing electrical isolation between the input  
6 power stage and the output power stage, the transformer further comprising:  
7           a bobbin having a termination block and a spool with an aperture  
8 therethrough;  
9           at least two windings wound around the spool;  
10           termination points mounted in the termination block of the spool,  
11 wherein a plurality of termination points is used providing electrical  
12 connection to the windings;  
13           a magnetic core inserted into the aperture in the spool; and  
14           an electromagnetic shield surrounding a least a portion of the magnetic  
15 core and electrically connected using a conductive strap to a shield termination  
16 point not connected to the windings which is electrically connected to a fixed  
17 potential through a safety rated capacitor.

1           7. The power supply of Claim 6 wherein the power supply is an ac-to-dc  
2 power supply.

1           8. The power supply of Claim 6 wherein the power supply is a dc-to-dc  
2 power supply.

1           9. The power supply of Claim 6 wherein the electromagnetic shield is  
2 formed from copper foil.

1           10. The power supply of Claim 6 wherein the fixed potential is a ground  
2 plane on the secondary side of the transformer.

1 *11.* A method of shielding a magnetic structure from radiating  
2 electromagnetic interference, the magnetic structure having a support structure, a  
3 magnetic core mounted in the support structure, windings mounted on the support  
4 structure, and termination points electrically connected to the windings and mounted  
5 in the support structure, the method comprising:

6       at least partially enclosing the magnetic core with an electromagnetic shield;  
7       connecting the electromagnetic shield to a shield pin mounted in the support  
8 structure using a conductive strap; and  
9       connecting the shield pin to a fixed voltage through a safety rated capacitor.

1 *12.* The method of Claim *11* wherein the fixed voltage is a secondary  
2 ground plane.

1 *13.* The method of Claim *11* wherein the electromagnetic shield is formed  
2 from copper foil.

1 *14.* The method of Claim *11* wherein the magnetic structure is an isolation  
2 transformer used in a power supply.

1 *15.* The method of Claim *11* wherein the shield pin is separated from the  
2 termination pins in order to maintain safety spacing and creepage requirements.